

FORMING GATE OXIDES HAVING MULTIPLE THICKNESSES

ABSTRACT

Gate oxides having different thicknesses are formed on a semiconductor substrate by forming a first gate oxide on the top surface of the substrate, forming a sacrificial hard mask over a selected area of the first gate oxide; and then forming a second gate oxide. A first poly layer may be formed on the first gate oxide, under the hard mask. After the hard mask is removed, a second poly layer may be formed over the second gate oxide and over the first poly layer. This enables the use of high-k dielectric materials, and the first gate oxide can be thinner than the second gate oxide.